

RF 3544

## EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.  
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 955-7000

**March 29, 1993**

**93-RF-3544**

**A. H. Pauole**  
**Acting Manager**  
**DOE, RFO**

**Attn: M. E. Van Der Puy**

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENTATION FOR THE OU2  
FEASIBILITY STUDY/ CORRECTIVE MEASURE STUDY (FS/CMS) - GHS-134-93

Attached is a copy of an Environmental Checklist (EC) and an Action Description Memorandum (ADM) for the OU2 FS/CMS Project that has been reviewed by the Plant NEPA Compliance Committee (NCC). The NCC, along with EG&G's Ecology and NEPA Division, has recommended an environmental assessment for the project as indicated on the enclosed EC Review Form.

Please provide a NEPA determination for this project. Contact Steve Nesta, Ecology and NEPA Division, at X8605, or Claire Reno at X8620, if further information is needed.

G. H. Serlock, Director  
Environmental Protection Management

WAM:mad

Orig. and 1 cc - A. H. Pauole

**Attachment:  
As Stated (2)**

cc:  
S. R. Grace  
P. M. Powell  
B. K. Thatcher

**CLASSIFICATION:**

CNI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSIFIED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CONFIDENTIAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SECRET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**THORIZED CLASSIFIER**

**SIGNATURE**

12/2/21

7/5 = 1.4

REPLY TO RFP CC NO:

188 PF93

CTION ITEM STATUS

OPEN  CLOSED

☐ PARTIAL

**R. APPROVALS:**

7/29 / 6775  
RIG & TYPIST INITIALS

**ACTION  
DESCRIPTION  
MEMORANDUM  
FOR  
OPERABLE UNIT 2  
FEASIBILITY STUDY/  
CORRECTIVE MEASURES STUDY**

**March 29, 1993**

## **1.0 INTRODUCTION**

This Action Description Memorandum is prepared to provide sufficient information for a determination of the appropriate level of National Environmental Policy Act (NEPA) documentation for remedial action to be taken at Operable Unit (OU) 2 at the Department of Energy's Rocky Flats Plant (RFP) north of Golden, Colorado. The location of OU 2 is shown in Figure 1.

## **2.0 PURPOSE AND NEED FOR PROJECT**

OU 2 is one of 16 operable units at RFP. OU 2 is identified as the 903 Pad, Mound and East Trenches and is located in and adjacent to the southeast portion of the developed area of the Plant. It consists of the 903 Pad (an abandoned drum storage area that has been paved to prevent resuspension of plutonium particulates), the Mound area (where drums of radionuclide-contaminated lathe coolant were buried and subsequently leaked before their removal) and the East Trenches area (where radioactively-contaminated sewage sludge was buried). Under the provisions of the Comprehensive Environmental Response, Compensation and Liability Act, the 19 individual hazardous substance sites (IHSSs) of OU 2 must be characterized to identify the nature and extent of contamination. This step would be followed by identification and analysis of alternative remedial actions and selection and implementation of one or a combination of remedial actions.

Site characterization as well as identification and selection of the remedial action(s) will be described in a Feasibility Study/Corrective Measures Study (FS/CMS), preparation of which could start as early as FY '94. Because contamination above actionable levels may exist in three media (surface water, groundwater and soils), media-specific remedial actions will be developed but a single combined alternative, consisting of remedial actions for all three media, will be selected.

## **3.0 PROPOSED ACTION**

Since preparation of the FS/CMS has not yet begun, neither has development of alternative remedial actions. However, information from the Remedial Investigation/RCRA Facilities Investigation Report, which is in preparation, is sufficient to permit consideration of 1) a reasonably likely set of alternative actions (one for each media) and 2) an expected "worst case" set of alternative actions. These two sets of alternatives are believed to bound the range of actions likely to be considered in the FS/CMS in terms of environmental impact.

Both sets of alternatives assume continued operation of the OU 2 Interim Action for Surface Water as well as the OU 2 Subsurface Interim Action. While many important details are unknown, it is believed that the information provided is sufficient to identify the general environmental impacts that would result from implementation of the alternatives and permit identification of the appropriate level of NEPA documentation.

Descriptions of these two sets of alternatives, based on the best available information, follow.

### **"Worst Case" Scenario**

**Surface water remediation by continued operation of the OU 2 Interim Action surface water collection and treatment system.** Modifications would be made to the existing collection and treatment plant to more fully automate the operation by installation of automated monitoring and measuring devices. The basic collection and treatment facilities would not be changed and there would

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**Groundwater remediation by installation of recovery wells and additional water treatment capacity equivalent to the existing groundwater treatment unit.** Approximately 20 wells would be drilled at the Pad, Mound and East Trenches. Water from these wells would be pumped to a central location for treatment through pipes that would probably be laid underground. Location of the treatment unit (if not combined with the existing OU 2 water treatment unit) has not been decided, but would be expected to be in the general area of the existing unit. Treated water would be either released to the natural surface drainage system, reinjected to the groundwater system or put into the Plant's industrial water system. Releasing to the Plant's industrial water system would reduce downstream flows and could affect wetlands downstream of the diversion area.

**Soils remediation by excavation, treatment and/or off-site shipment.** Soils within the 19 individual hazardous substance sites (IHSSs) of OU 2 would be excavated to various depths ranging from five to 15 feet. The total area to be excavated at the IHSSs is estimated at approximately 41 acres, producing approximately 550,000 cubic yards of soil. The soil would be treated in two or three stages. First, the soil believed to contain volatile compounds would be subject to low-temperature thermal desorption to remove volatiles. Secondly, soils containing radionuclides or metals would be subject to soil washing, or a comparable process, to remove as much of the radionuclides as feasible. This stage would be expected to clean approximately two-thirds of the soil enough that it could be returned to the site from which it was excavated. The remaining one-third would be solidified by the addition of a solidifying compound such as concrete. Solidification would increase the volume of material by approximately 40%. Soil from IHSS 140, totalling approximately 33,000 cubic yards and believed not to contain radionuclides, would be treated, stabilized and placed in permanent storage at an undetermined location at RFP. The nature of the storage facility is not known (a capped pile, above-ground or below-ground constructed facility, etc.), but would permanently cover a significant area. Soil from the other 18 IHSSs, totalling approximately 517,000 cubic yards and which is believed to contain radionuclides, would be treated and solidified as described above, reducing its volume to approximately 241,000 cubic yards, and shipped off site for appropriate disposal.

In addition, up to 400 acres south and east of the 903 Pad, which may have surficial plutonium contamination, would have its top four-to-six inches of soil removed. The resulting 323,000 cubic yards of soil, would be treated as described above. It is estimated that, after treatment, approximately two-thirds of the soil (215,000 cubic yards) would be clean enough to place back on the site from which it was

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Thus, total volume of soil to be shipped off-site is estimated at approximately 392,000 cubic yards. All excavated areas would be regraded and revegetated.

#### **"Reasonably Likely" Scenario**

**Surface water remediation.** Surface water remediation under this scenario would be the same as under the "Worst Case" scenario.

**Groundwater remediation.** Ground water remediation under the "Reasonably Likely" scenario would be the same as under the "Worst Case" scenario.

**Soils remediation.** Soils remediation under this alternative would be the same as under the "Worst Case" scenario except that

- 1) the additional acreage south and east of the 903 Pad would not be remediated and
- 2) vapor extraction would be used instead of excavation and treatment at approximately one-quarter of the combined area of the IHSSs.

Soil remediation would be confined to the 19 IHSSs and would result in approximately 181,000 cubic yards of soil being shipped off-site for disposal. An estimated 31 acres of land would be affected by excavation.

#### **4.0 POTENTIAL ENVIRONMENTAL ISSUES**

##### **4.1 Surface Water and Groundwater**

Remediation of surface water and groundwater has the potential to impact wetland areas downstream of diversion/withdrawal areas if the treated water is not returned to near the site from which it was taken. Flows could be reduced or eliminated, causing negative impacts to the downstream natural environment dependant on that water. Such impacts would continue as long as the remedial action continued which could be up to several decades.

##### **4.2 Soils and Habitat**

Under the "worst case" scenario, remediation of soils at OU 2 could result in the excavation of soils five-to-fifteen feet deep over an area of 41 acres and the removal of the top approximately 6-inches of soil from another 400 acres. This soil would be treated. After treatment, between half and two-thirds of the soil would be replaced where it was removed, a portion would be permanently disposed of elsewhere at RFP and the remainder would be sent off-site for appropriate disposal.

Environmental impacts would include destruction of the local environment at the 441 acres from which soil was removed and at the several acres occupied by the permanent storage site at RFP. All vegetation would be removed and natural soil horizons eliminated. Revegetation of disturbed areas would be part of the project. All habitat in the area being remediated would be destroyed and animals living in or depending on the area would be forced to find alternative habitat. Some of these animals would not survive the excavation or replacement activity. In time, natural forces would be expected to return the excavated area to approximately its current condition, but the length of this time could be substantial. Topography of the excavated area would be different after replacement of the soil because less soil would be replaced than was removed.

Vegetation and habitat under the area selected for permanent disposal of soil would not return. The soil pile would be capped or otherwise protected from natural forces so that it would not support any type of habitat.

##### **4.3 Dust**

Excavation activities would be accompanied by dust suppression measures, but it is not known how successful such measures would be on such a large project. The possibility for fugitive dust would exist.

**ROCKY FLATS PLANT  
ECOLOGY & NATIONAL ENVIRONMENTAL POLICY ACT DIVISION  
ENVIRONMENTAL CHECKLIST**

EC Number: 93-022

Charge number: 986446

- I. Date: March 24, 1993
- II. Activity/Project Name: Operable Unit 2 FS/CMS
- III. Authorization/Project Number: N/A
- IV. A. EG&G Project Administrator: N/A  
B. ADS Number (E&WM only): 1002B  
C. DOE Program Sponsor: Scott Grace
- V. Initiating Line Manager: Annette Primrose
- VI. A. Project/Activity Description:

Preparation of the Feasibility Study/Corrective Measures Study (FS/CMS) for Operable Unit (OU) 2 (903 Pad, Mound and East Trenches) could start as early as FY '94. The FS/CMS will center on development of remedial action alternatives, their analysis and consideration under criteria specified by CERCLA, and, finally, selection of combined alternatives to remediate contamination at the OU. Because contamination above actionable levels may exist in three media (surface water, groundwater and soils), media-specific remedial actions will be developed but a single combined alternative, consisting of remedial actions for all three media, will be selected.

Since preparation of the FS/CMS has not yet begun, neither has development of alternative remedial actions. However, information from the Remedial Investigation/RCRA Facilities Investigation Report, which is in preparation, is sufficient to permit consideration of 1) a reasonably likely set of alternative actions (one for each media) and 2) an expected "worst case" set of alternative actions. These two sets of alternatives are believed to bound the range of actions likely to be considered in the FS/CMS in terms of environmental impact.

Reviewed For Classification

By \_\_\_\_\_

Date \_\_\_\_\_

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B. Total Estimated Cost: unknown; in excess of \$100,000,000

C. Funding Source: EM

#### CHECKLIST

Yes    No

#### VII. Statutes applicable:

- |                                                                                                            |              |              |              |
|------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|
| A. Will the project require or potentially require an application for permit or permit modification under: |              |              |              |
| 1. Clean Air Act?                                                                                          | <u>    </u>  | <u>  X  </u> | (see Note 1) |
| 2. Clean Water Act?                                                                                        | <u>    </u>  | <u>  X  </u> |              |
| B. Does the project involve RCRA permitting ? (if "no", skip to C)                                         | <u>  X  </u> | <u>    </u>  | (see Note 2) |
| 1. Will a RCRA permit or modification be required?                                                         | <u>  X  </u> | <u>    </u>  |              |
| 2. Does the project include a removal?                                                                     | <u>    </u>  | <u>  X  </u> |              |
| 3. Does project include RCRA closure?                                                                      | <u>    </u>  | <u>  X  </u> |              |
| - partial?                                                                                                 | <u>    </u>  | <u>    </u>  |              |
| - full?                                                                                                    | <u>    </u>  | <u>    </u>  |              |
| 4. Does project include excavation or capping to meet RCRA requirements?                                   | <u>    </u>  | <u>    </u>  | (see Note 2) |

	<u>Yes</u>	<u>No</u>	
5. Will cost and duration stay within \$2 million and 12 months? (Explain in project description.)	<u>    </u>	<u>X</u>	
C. Does the project involve CERCLA? (If "no", skip to D)	<u>X</u>	<u>    </u>	(see Note 3)
1. Does project include CERCLA removal?	<u>    </u>	<u>X</u>	
2. Will cost and duration stay within \$2 million and 12 months? (Explain in project description.)	<u>    </u>	<u>X</u>	
D. Does the project threaten to violate statutory, regulatory, or permit requirements, or DOE Order?	<u>    </u>	<u>X</u>	
E. Will the action be in or near a SWMU?	<u>X</u>	<u>    </u>	(see Note 4)
F. Does the project potentially impact threatened & endangered species or habitat, the Migratory Bird Treaty Act, or Fish and Wildlife Coordination Act?	<u>    </u>	<u>X</u>	
VIII. Will the project construct or require a new or expanded waste disposal, recovery, storage or treatment facility?	<u>X</u>	<u>    </u>	(see Note 5)
IX. Is the project needed for IAG, AIP, FECA, or other federal or state agreement? (Specify and explain any schedule urgency and deadlines in project description.)	<u>X</u>	<u>    </u>	(see Note 6)
X. Is the project a:			
A. new process, building, etc.?	<u>X</u>	<u>    </u>	(see Note 6)
B. modification to an existing?	<u>    </u>	<u>X</u>	
C. capital equipment/machinery installation?	<u>X</u>	<u>    </u>	(see Note 6)
XI. Location Items:			
A. Will the project result in, or have the potential to result in, long term changes to the environment?	<u>X</u>	<u>    </u>	(see Note 7)
B. Will the action occur outside the security zone/protected area (i.e., outside Gate 8 at Post 100 and Gate 10 at Post 900)?	<u>X</u>	<u>    </u>	(see Note 8)
C. Will the action take place in a wetland or floodplain?	<u>    </u>	<u>X</u>	
XII. Will the project result in changes and/or disturbances to the following existing considerations?			
A. noise levels	<u>    </u>	<u>X</u>	
B. air emissions	<u>X</u>	<u>    </u>	(see Note 9)
C. liquid effluents	<u>X</u>	<u>    </u>	(see Note 10)
D. solid wastes	<u>X</u>	<u>    </u>	(see Note 11)
E. radioactive wastes (including contaminated soil)	<u>X</u>	<u>    </u>	(see Note 12)
F. hazardous waste	<u>X</u>	<u>    </u>	(see Note 13)

	<u>Yes</u>	<u>No</u>	
G. mixed waste (radioactive and hazardous)	<u>X</u>	<u>    </u>	(see Notes 12 & 13)
H. chemical or petroleum product storage	<u>    </u>	<u>X</u>	
I. water use (withdrawal of groundwater or diversion or withdrawal of surface water)	<u>X</u>	<u>    </u>	(see Note 14)
J. drinking water system	<u>    </u>	<u>X</u>	
K. sewage disposal system	<u>    </u>	<u>X</u>	
L. soil movement outside facility fences or beyond SWMU boundaries	<u>X</u>	<u>    </u>	(see Note 15)
M. site clearing, excavation, or other physical alterations to grade	<u>X</u>	<u>    </u>	(see Note 16)
XIII. Will the project threaten public health or safety?	<u>    </u>	<u>X</u>	
XIV. Will the project have possible effects on the environment which are likely to be highly controversial?	<u>X</u>	<u>    </u>	(see Note 17)
XV. Will the project establish a precedent for future actions that will have significant effects, or represent a decision in principle about a future consideration?	<u>    </u>	<u>X</u>	
XVI. Will the project be substantially related to other actions that have individually insignificant but cumulatively significant impacts?	<u>    </u>	<u>X</u>	
XVII. Will the project adversely affect federal, state, or locally designated natural areas, prime agricultural lands, special water sources, or historic, archeological or architectural sites?	<u>    </u>	<u>X</u>	

Note 1 - Soil excavation activities may or may not require permits depending on concerns about resuspension of plutonium and the ability or mitigating measures to control it. Treatment of soil to remove volatiles could result in air emissions; it is not known if any such emissions would require permitting.

Note 2 - Permanent storage of contaminated soil on the RFP site would involve RCRA and any such storage would have to be in a manner consistent with RCRA requirements. Soil storage could include capping. It is not known if the project would include

Note 3 - Remediation of OU 2 would be undertaken pursuant to the requirements of CERCLA.

Note 4 - The action would take place in the 19 SWMUs (or IHSSs) of OU 2 and elsewhere.

Note 5 - The project could require construction of a new waste treatment facility (for treating ground and surface water, a second treatment facility for treating contaminated soil, and construction of a permanent storage facility for contaminated soil at RFP.

Note 6 - The final remedial action at OU 2 is one of the major milestones of the IAG.

Note 7 - The project would remove contaminants, chiefly plutonium, metals and volatiles, from the environment which would be expected to result in reduced environmental impacts compared to those that would occur if the contaminants were not removed.

Note 8 - The project would occur in the south east corner of the Security Controlled Area and adjacent areas of the Buffer Zone.

Note 9 - The excavation and treatment activities could result in release of volatiles and resuspension of plutonium. The project is expected to include all available technologies to limit any such releases.

Note 10 - Liquid effluents, consisting of treated water, may be released from the water treatment facility. Releases could be to either the surface water drainage system or to the groundwater system by reinjection. Treated water may be put into the Plant's industrial water system, in which case there would be no liquid effluents.

Note 11 - The soil treatment process would be expected to produce soils that were clean enough to be replaced at the site from which they were excavated. Such soils might be considered solid waste.

Note 12 - The soil treatment process would be expected to result in some soils that remain sufficiently radioactively contaminated that they are considered radioactive waste. This soil would be shipped off-site for disposal.

Note 13 - Soil at IHSS 140 is believed contaminated with lithium and volatiles. While this soil would be processed to remove volatiles, it is not planned to be processed to remove metals, and would likely be considered a hazardous waste. The soil would be permanently stored at an as-yet-unidentified location at RFP.

Note 14 - Water would be withdrawn from both the surface and groundwater systems for treatment. Such water could be returned to either system or to the Plant's industrial water system.

Note 15 - Large quantities of soil would be moved beyond SWMU boundaries for treatment. Some of this soil would be returned to the SWMU as clean soil, some would be permanently stored at a new location on the Plant site and some would be removed permanently from the Plant site.

Note 16 - A total of approximately 441 acres would be affected by temporary or permanent removal of soils.

Note 17 - It is possible that removal of such large quantities of soil, particularly when compounded by the perceived increase in risk of resuspension of plutonium, could make that part of the project controversial.

EC Prepared by: Bill Moore

Date: 3/19/93

Organization: EP/END

Bldg: 080

Extension: 8599